UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,181	01/30/2002	Adoram Erell	10559-335001 / P9850X	9388

20985 7590 06/28/2005

FISH & RICHARDSON, PC
12390 EL CAMINO REAL
SAN DIEGO, CA 92130-2081

EXAMINER	
OPSASNICK, MICHAEL N	

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/062,181	ERELL, ADORAM	
	Examiner	Art Unit	
	Michael N. Opsasnick	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/15/03, 7/12/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Content of Specification

(a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.

(b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

(c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.

(d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).

(e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

(f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:

(1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

(2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."

(g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

(h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.

(i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

(k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the

international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

(l) Sequence Listing, See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

2. The disclosure is objected to because of the following informalities:

The specification does not contain cross related application information; in this instance, the instant application is a Continuation-In-Part of Application No. 09/867028.

Appropriate correction is required (as emphasized above).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Heitkamper (EP06000164A1).

As per claim 1,19, Heitkamper (EP06000164A1) teaches a method of controlling volume of a received signal (Page 2, 1st col., 2nd paragraph, shows volume control to keep the signal above a nominal value and below a second nominal value) comprising:

"computing an automatic gain control (AGC) gain" as an expansion gain from P1 to P2 (page 13, fig. 6; as expansion level from P1 to P2 on the vertical scale represents the gain corresponding to the small amount of increased level of the input level to the microphone, page 5 lines 4-5; the expansion range given by $g(y_s)=c_2y_s$);

"computing a weighted dynamic range compression (DRC) gain" as compression between points P2 to P3 in figure 6; and page 5 col. 1 lines 40-44; page 5, col. 2 lines 7-9;

"determining a total automatic volume control (AVC) gain from by combining an additional gain with the AGC gain and the weighted DRC gain" as the total gain from P1 to P3, wherein P1 to P2 is equates to AGC gain, and P2 to P3 equates to a DRC gain. (Fig. 6, page 5 col. 1 lines 35-44; col. 2 lines 1-10).

As per claims 2,20, Heitkamper (EP06000164A1) teaches:

"wherein the computation of the AGC and DRC gains are performed on a block of speech samples and updated from one block to the next" as voice level based control signals (page 4, col. 1 lines 30-41, the voice levels are detected, especially during bursts, and the peak signal during these bursts are stored and updated for each burst).

As per claims 3-7,21, Heitkamper (EP06000164A1) teaches the weighting factor to be a constant gain, based upon transmission noise levels (page 3, col. 2, lines 30-40; wherein the amplification is performed by the compander; page 4, col. 2 lines 44-52, according to the gain curves as discussed in claim 1).

As per claims 8,9,22, Heitkamper (EP06000164A1) teaches smoothing the gains over several frames (short term and long term averaging → page 5, col. 2 lines 10-35).

As per claim 10, Heitkamper (EP06000164A1) teaches:

"computing the DRC gain using noise signal dependent and receive independent parameters according to the formula: drc gain = MAX DRC GAIN* max(drc gain factor, noise factor); wherein MAX DRC GAIN is an upper limit on the DRC gain." as equating MAX DRC GAIN to the maximum (cutoff) at level P3 in Fig. 6, and the max(drc gain factor, noise factor) equates to Heitkampers gain equation $g(y_s)=c_s(y_s)$ on page 5, col. 2, line 8, where y_s is the digital control value (page 5, col. 1 line 11) and the voice level of y effects a noise level measurement (through the noise detector, page 6, col. 2, lines 50-55), establishing an absolute bottom (page 3, col. 1 lines 40-50; col. 2 lines 1-5).

As per claim 11, Heitkamper (EP06000164A1) teaches:

"computing the AGC gain using agc gain = (LEVELI - envelope); wherein LEVELI is the target level for a receive signal envelope level" as level P2 (Fig. 6) is the upper level of the AGC gain;

"wherein the computation agc gain = min(MAx AGC GAIN, agc gain)" as the range between P1 and P2 for the AGC (Fig. 6) and by equation on page 5, col. 2 lines 3-5);

"wherein MAX AGC GAIN the upper limit the gain and agc gain =min(MAx RMS -long term rms, agc gain), that the AGC gain is the lesser of the calculated AGC gain and the maximum RMS minus the long term RMS" as the range of P1-P2 in Fig. 6 is a function of the

short term average value y_s compared to the long term value y (page 5, col. 2 lines 13-151 and lines 21-24). This value is capped at the same value if the calculated value is greater than the nominal value (page 5, col. 2 lines 24-30 → if the calculated value mine y_0 greater than 0, then the value remains at the nominal value.

As per claim 12, Heitkamper (EP06000164A1) teaches a device which receives a signal and performing volume control (Page 2, 1st col., 2nd paragraph, shows volume control to keep the signal above a nominal value and below a second nominal value) comprising:

"computing an automatic gain control (AGC) gain" as an expansion gain from P1 to P2 (page 13, fig. 6; as expansion level from P1 to P2 on the vertical scale represents the gain corresponding to the small amount of increased level of the input level to the microphone, page 5 lines 4-5; the expansion range given by $g(y_s)=c_2y_s$);

"computing a weighted dynamic range compression (DRC) gain" as compression between points P2 to P3 in figure 6; and page 5 col. 1 lines 40-44; page 5, col. 2 lines 7-9;

"determining a total automatic volume control (AVC) gain from by combining an additional gain with the AGC gain and the weighted DRC gain" as the total gain from P1 to P3, wherein P1 to P2 is equates to AGC gain, and P2 to P3 equates to a DRC gain. (Fig. 6, page 5 col. 1 lines 35-44; col. 2 lines 1-10).

As per claims 13-17, Heitkamper (EP06000164A1) teaches the weighting factor to be a constant gain, based upon transmission noise levels (page 3, col. 2, lines 30-40; wherein the

amplification is performed by the compander; page 4, col. 2 lines 44-52, according to the gain curves as discussed in claim 1).

As per claim 18, Heitkamper (EP06000164A1) teaches smoothing the gains over several frames (short term and long term averaging → page 5, col. 2 lines 10-35).

As per claim 23, Heitkamper (EP06000164A1) teaches decoding the speech (as receiving decoded speech → page 6, col. 1 last two paragraphs).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Larsen et al (5303308) teaches amplifying an input signal and removing signal levels.

Miller et al (4611342,4609788) teaches an AGC circuit.

Shashoua (6535846) teaches AGC peak to rms calculations.

Borth et al (4628529) teaches amplitude and noise manipulation.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see related art listed on the PTO-892 form.

7. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231
or faxed to:
(703) 872 9314,
(for informal or draft communications, please label "PROPOSED" or "DRAFT")
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Opsasnick, telephone number (571)272-7623, who is available Tuesday-Thursday, 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Wayne Young, can be reached at (571)272-7582. The facsimile phone number for this group is (571)272-7629.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (571) 272-2600, the 2600 Customer Service telephone number is (571)272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mno
6/21/05

Michael N. Opsasnick
Examiner
Art Unit 2655